09/075584

ABSTRACT

A vehicle seat belt tension prediction system and method
comprises an accelerometer having an output signal responsive to
5 vertical acceleration of the vehicle, a seat weight sensor having an
output signal responsive to the force exerted by a mass resting on the
seat, and a processor means for calculating seat belt tension. The
processor is provided with a plurality of inputs operatively coupled to
the accelerometer output and seat weight sensor output. Suitable
10 programming is provided to instruct the processor to calculate the
average mass resting on the vehicle seat and predict the force that
should be exerted on the seat for a measured level of vertical
acceleration assuming zero belt tension. The processor then compares
the actual force measured by the seat weight sensor with the predicted
15 force to determine seat belt tension thereby obviating the necessity of
complex hardware in physical contact with the seat belt system.